



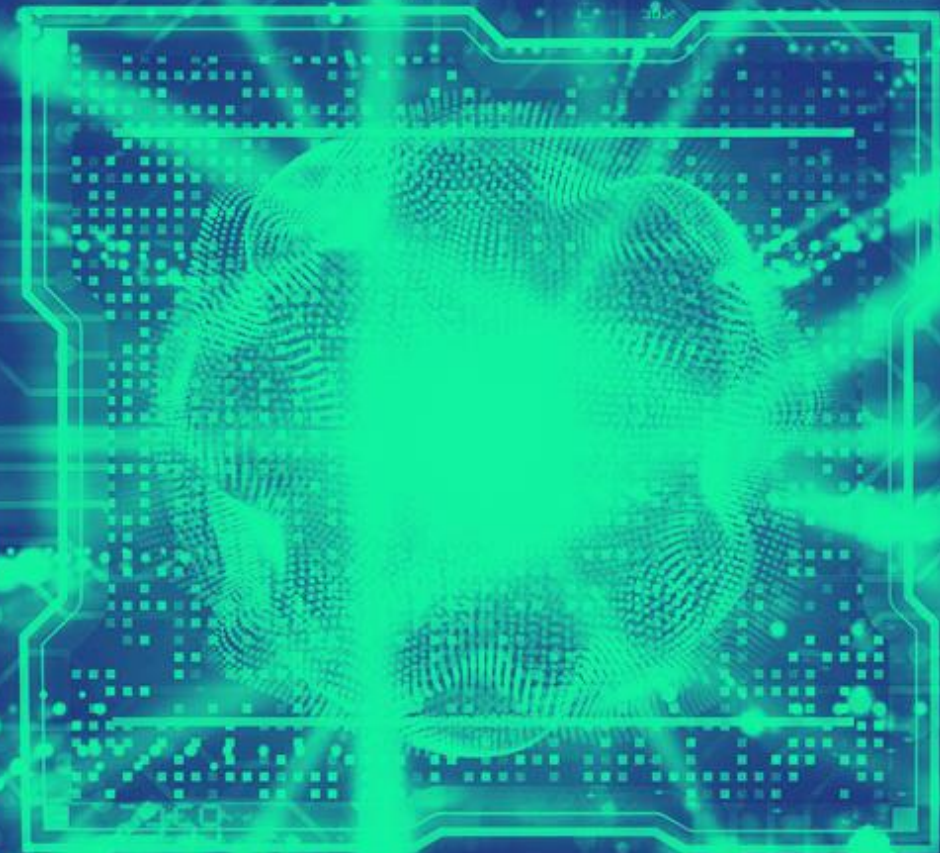
LE TECNOLOGIE QUANTISTICHE IN ITALIA

QUANTUM SENSING e nuove opportunità

Prof. Claudio Giannetti, Università Cattolica del Sacro Cuore

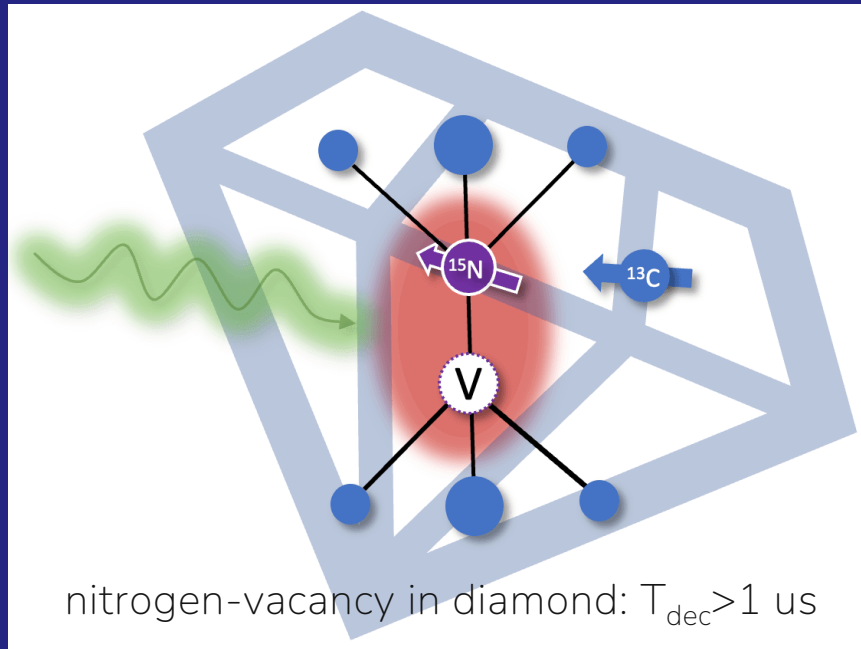
27 febbraio 2024 - 16:30

CSMT Innovative Contamination Hub



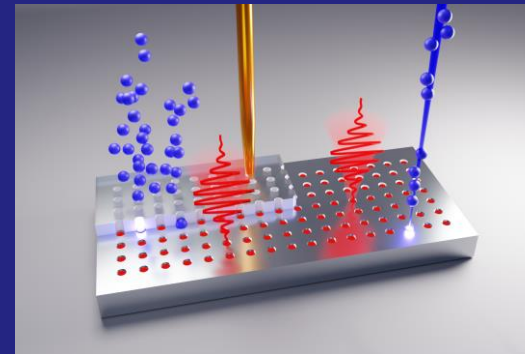
Quantum Sensing

single spins and photons with very long decoherence times

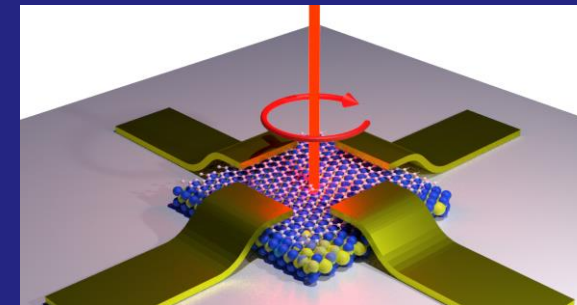
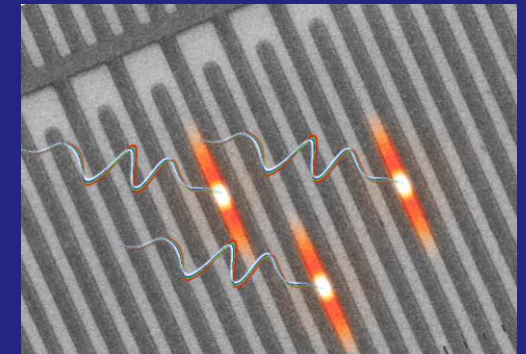


Extreme sensitivity (>3-4 orders of magnitude)
to small magnetic fields

Single photon emitters



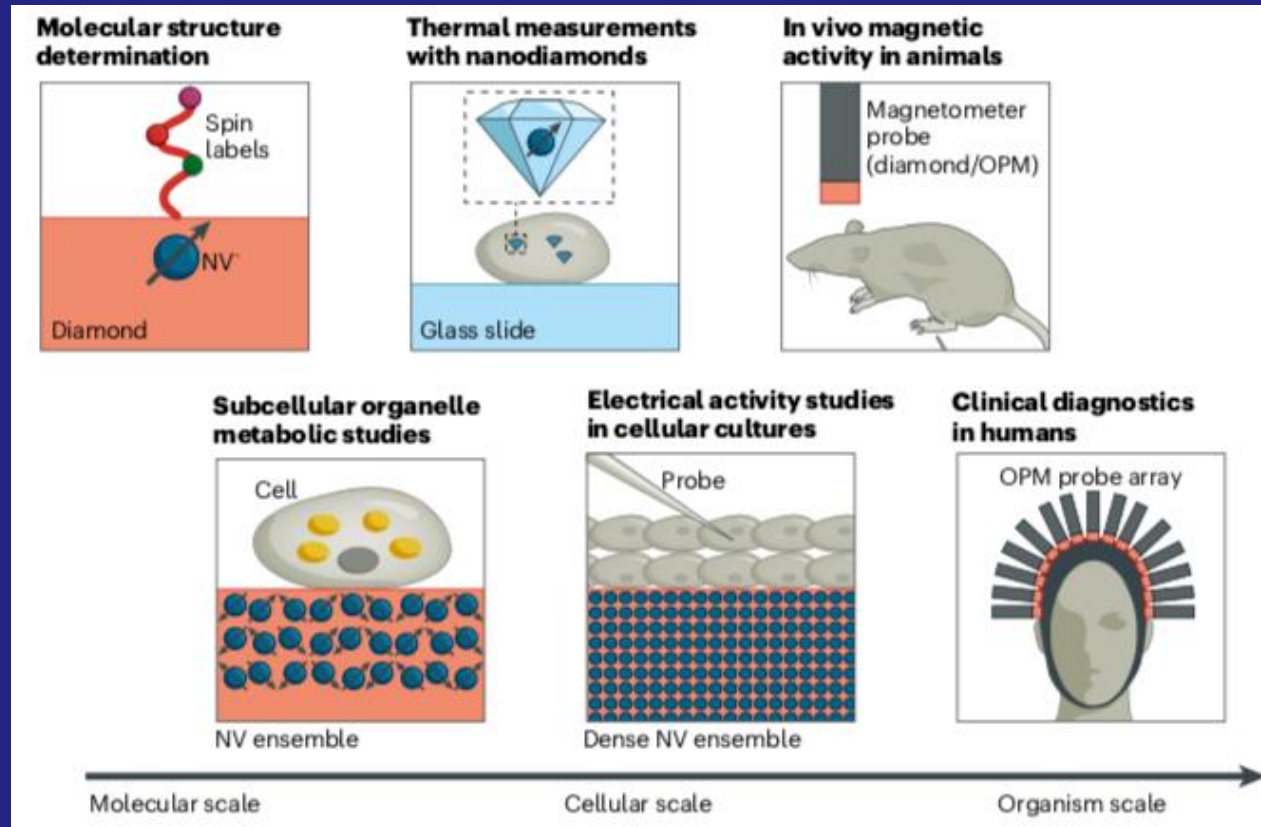
Single photon detectors



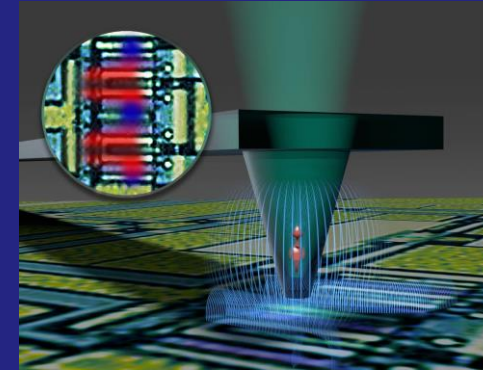
Quantum materials: e.g. superconductors, 2D,
topologically protected states

Quantum Sensing: applications

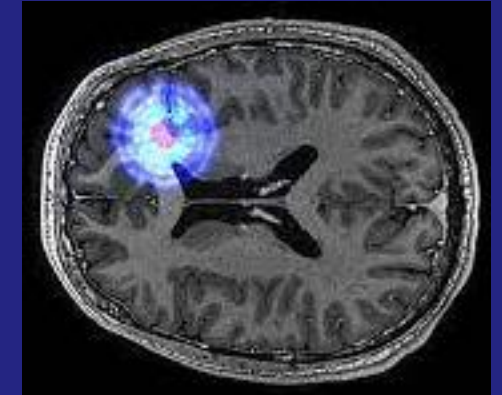
Bio-imaging



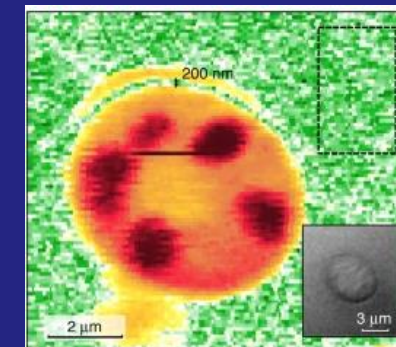
Quantum magnetometers



Metabolic NMR



Quantum enhanced non-linear microscopy



Quantum enhanced bacteria detection

Quantum@Università Cattolica



UNIVERSITÀ
CATTOLICA
del Sacro Cuore

- ✓ Maggiore università non statale italiana, tra le maggiori in Europa
- ✓ Oltre 40.000 studenti iscritti, di cui oltre 4.800 stranieri
- ✓ 1.329 professori e ricercatori in organico
- ✓ Cinque campus (Milano, Brescia, Piacenza, Cremona, Roma)
- ✓ 12 facoltà in 10 delle 14 aree disciplinari CUN
- ✓ 42 corsi di laurea triennali, 57 corsi di laurea magistrali, 7 corsi di laurea magistrali a ciclo unico
- ✓ 39 dipartimenti e 102 centri di ricerca
- ✓ QS Ranking 2023: tra le prime 150 al mondo in 9 aree disciplinari



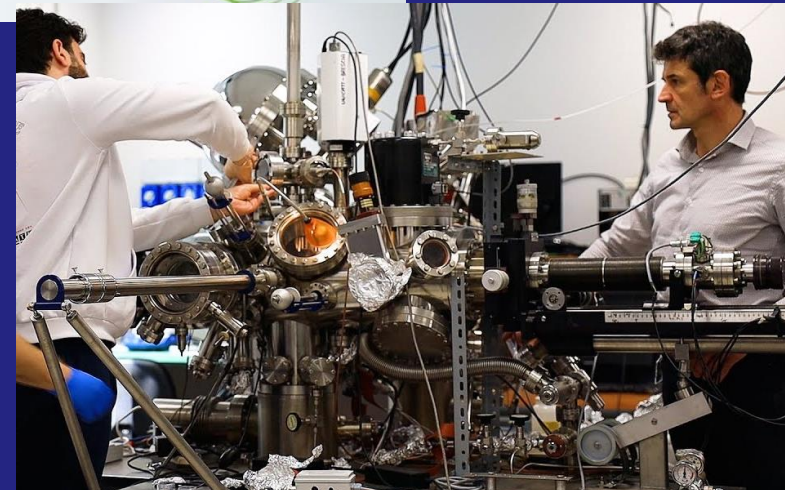
Brescia Campus

- ✓ Dipartimento di Matematica e Fisica
- ✓ Corsi di laurea in Matematica, Fisica, Applied Data Science for B&F
- ✓ Interdisciplinary Labs for Advanced Materials Physics
- ✓ International Doctoral Program in Science

Interdisciplinary Labs for Advanced Materials Physics



- ✓ Ultrafast and non-linear physics
- ✓ Advanced spectro-microscopies
- ✓ Quantum and Nano materials
- ✓ Quantum-enhanced sensors and detectors





Grazie
all rights reserved